Substance Abuse, Pregnancy and HIV

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Although often approached separately, the two epidemics of drug abuse and addiction and of HIV/AIDS are now totally intertwined. The abuse of both legal and illegal drugs during pregnancy and the associated consequences of this abuse create a unique period of risk for the women affected. The transmission of HIV to the fetus by a woman infected with HIV as a result of her own drug use or through high-risk sexual behaviors has raised the level of concern, controversy and commitment for change. Therefore, pregnancy is also a unique time for prevention and intervention to attenuate adverse outcomes.

Substance Abuse in Women

The National Household Survey on Drug Abuse is the primary source of information on the prevalence and incidence of illicit drug, alcohol and tobacco use in the civilian population age 12 years and older. Results of the 1999 Survey which was conducted by the Substance Abuse and Mental Health Services Administration (SAMSHA) were made available in August 2000. Among pregnant women age 15-44 years, 3.4 % reported using illicit drugs in the month prior to the interview. Overall, the rate among non-pregnant women was significantly higher at 8.1%.

Young women merit specific attention. Among pregnant women age 15-17 years and 18-25 years, the age groups with generally higher levels of use, rates were 7.5% and 6.5%, respectively.

The 1999 National Household Survey on Drug Abuse also provided information on patterns of drug use. Among the 3.4% of pregnant women who reported any illicit drug use, marijuana (76%) was most commonly used. And, despite the burden of disease and risk associated with cocaine and heroin use, 8% of pregnant women reported use in the last month.

The non-medical use of prescription psychotherapeutic drugs has the third highest prevalence among women, regardless of pregnancy status. Among pregnant women the use is almost evenly divided between the categories of pain relievers, tranquilizers, stimulants and sedatives.

Pregnant women report lower use of pain relievers and tranquilizers than do non-pregnant women. However, the percentage of pregnant women reporting use of the stimulant methamphetamine in the past month is the same as that of non-pregnant counterparts.

With support from the National Institute of Drug Abuse (NIDA), the Community Epidemiology Work Group (CEWG) is a network of epidemiologists and researchers who review current and emerging trends in substance abuse. One of the sources for the CEWG database is ADAM, the Arrestee Drug Abuse Monitoring Program. According to ADAM, there are several major metropolitan areas where the percentage of female arrestees who test positive for cocaine exceeds that of men. The data source does not differentiate women who may have been pregnant.

Women who are crack cocaine users are at particularly high risk of acquiring HIV infection. The NIDA

Cooperative Agreement for AIDS Community-Based Outreach/Intervention Research Program supported multiple sites to evaluate standard and enhanced interventions for HIV counseling and testing. The NIDA risk-behavior assessment (RBA) used in the study yielded descriptive information about a variety of substance abuse and HIV risk behaviors. In addition to cocaine injection behaviors, increased risk of HIV transmission among cocaine users is mediated through sexual behaviors. Women who use crack cocaine and who report exchanging sex for drugs were found to have more sexual partners, to have had sex more often, to use drugs before and during sex frequently and to have higher rates of STDs, including HIV infection. Women who exchanged sex for drugs were more likely to be African-American, homeless, or involved with the criminal justice system. Women who had previously been in substance abuse treatment were also more likely to be exchanging sex for drugs. These characteristics inform policy, program and research needs related to this very important risk factor for acquisition of HIV infection.

Men continue to constitute the majority of heterosexual, injection-related AIDS cases in sites surveyed by the CEWG. However, in the first half of the 2000 reporting year there were several survey areas where the proportion of female AIDS cases related to injecting drug use are significantly higher than the proportion of male cases.

Perinatally-acquired HIV infection is associated with a personal history of injection drug use or sex with an injection drug user in between 40-72% of cases. In addition to the increased risk behaviors associated with drug abuse, there is some evidence that there are other substance abuse factors that increase the risk of transmission of HIV from an infected mother to her fetus. Drugs of abuse might have a direct effect on the maternal-fetal interface, that is, the placenta. Cocaine causes vascular inflammation and, if the placenta is affected, the normal barrier between maternal and fetal circulation could be interrupted. The fetus itself may become more vulnerable to acquiring HIV infection if there is a direct or indirect effect on the developing immune system as a result of maternal infection. Persistent cigarette smoking during pregnancy has also been shown to be associated with an increased likelihood of perinatal transmission.

Consequences of Co-morbidity

Hepatitis C virus (HCV) infection accounts for approximately 20% of all cases of acute viral hepatitis in United States. Progression to chronic hepatitis occurs in 70% of affected persons. Hepatitis C is easily transmitted through exposure to blood and less readily through exposure to semen, saliva or urine. Intravenous drug users account for at least half of patients in most series. Among HIV-positive individuals with an IDU history the infection rate for hepatitis C approaches 60%. The highest rates of new infections are among persons 20-39 years of age, which corresponds to peak reproductive ages in women. Co-infection with HIV modifies the natural history of chronic hepatitis C with a resulting rapid progression to cirrhosis. Alcohol use in the face of hepatitis C also decreases the time interval to serious liver damage and failure.

Jointly sponsored by the National Institute of Allergy and Infectious Diseases, the National Institute of Child Health and Human Development, and the National Institute on Drug Abuse, the Women and Infants Transmission Study (WITS) is an ongoing, prospective, multicenter study of the natural history of HIV-infected pregnant women and their infants. Pregnant women have been enrolled since 1989. Results of one review of WITS data reveal that perinatal transmission of HIV infection is approximately two times more frequent when mothers are also infected with HCV. Further study is needed to determine if the association represents an independent biologic effect of HCV infection or whether HCV is a marker for another cofactor such as continued drug use.

WITS also evaluated the risk of HCV vertical transmission in women with dual infection. HCV infection was detected in 8.4% of infants born to women who were infected with both HIV and HCV. This transmission rate is approximately two-fold that of the conservative estimates for HCV transmission from an infected mother to her infant.

There are complex dynamics related to immune system function and dysfunction that are hypothesized to account for these phenomenon. There are aspects of antiretroviral therapy that may actually result in an increase in HCV viral load and therefore increase the risk for transmission.

Substance abuse is associated directly and indirectly with a number of medical consequences as well as co-morbid conditions. Some of these conditions, such as tuberculosis and alcoholism, have consequences for public health as well as individual health. There are significant costs associated with all of these consequences. Substance abuse and addiction in women are associated with additional obstetrical and gynecological consequences: low birth weight, preterm labor and delivery, placental accidents, hypertensive disorders, chronic pelvic pain syndromes, and abnormal menstrual bleeding. Abuse of legally available substances, alcohol and tobacco, actually account for the greatest adverse perinatal consequences.

Underlying medical conditions such as depression or other mental health disorders may influence the initiation or continuation of substance abuse. Female drug users are more likely to suffer from depression and anxiety disorders than the general population or people with other medical conditions. The cognitive dysfunction and neurotoxicity associated with drug use may result in unrecognized disease exposures that increase the risk for HIV infection and other blood-borne infections. This same cognitive dysfunction, especially among individuals who are binging, decreases the recognition of, and attention to, other physical signs and symptoms.

Comprehensive Care Model

To be effective, treatment of substance abuse must address the individual's drug use and any associated medical, psychological, social, vocational and legal problems. This list of elements of services is somewhat overwhelming but can be more easily embraced if a process model is applied to it. Each one of these activities or supporting services is part of a treatment process sequence that, when linked and interactive, will yield the more successful treatment outcomes over time. Ultimately, treatment of abuse and addiction can be as successful as treatment of other chronic conditions such as diabetes or hypertension.

Medical detoxification is a process whereby individuals are systematically withdrawn from addicting drugs in an inpatient or outpatient setting, typically under the care of a physician. Opiate detoxification is carried out in pregnancy under medical supervision and methadone maintenance is initiated, if necessary, to stabilize the woman medically and to improve functioning.

Other important pharmacological interventions include the treatment of co-morbid conditions common in drug using populations. Use of anti-depressants in drug users with associated mental illness are as important as therapies directed specifically to the effects of the drugs of abuse.

As reported at the 1997 National Institutes of Health Consensus Development Conference, "Interventions to Prevent HIV Risk Behaviors," studies have shown repeatedly that people using drugs are amenable to behavior change strategies, and behavioral interventions can be effective in reducing the

spread of HIV. Motivational enhancement therapy is a client-centered counseling approach for initiating behavior change by helping individuals to resolve ambivalence about engaging in treatment and stopping drug use. This approach employs strategies to evoke rapid and internally motivated change in the client. Research needs to be expanded to evaluate the use of this type of intervention during pregnancy when immediate cessation of drug use and abstinence are desirable to prevent negative consequences for mother and fetus. Success with stopping drugs would allow a greater opportunity for voluntary counseling and recommendation for testing for HIV, other blood-borne infections and medical consequences, as well as for family and social assessments.

The relationship between posttraumatic stress disorder (PTSD) and substance abuse has been increasingly identified as a significant clinical and research focus. Women with current PTSD comprise 30-60% of substance abuse treatment samples and experience a more severe course than women with either disorder alone. Many affected women are polysubstance abusers with cocaine as a frequent drug. Many women have definite histories of significant childhood and early adult psychological, sexual and physical traumas. A superimposed pregnancy may have the potential to exacerbate symptoms particularly, where triggers are concerned and thereby limit adherence to recommended prenatal prescriptions and proscriptions.

Barriers to Care

In order to structure a comprehensive perinatal program for substance-abusing women, an understanding of the barriers to care is required. The three most relevant barriers are the attitudes and behavior of substance-abusing women, the attitudes and lack of understanding of the pregnant addict by obstetric care providers, and the lack of coordination between obstetric care providers and those professionals involved in mental health and drug abuse treatment.

Attitudes and concerns of substance-abusing women that may provide a barrier to care include:

- social alienation
- stigmatization
- fear of losing custody of children
- fear of prosecution
- acceptance of treatment under duress.

The results of a national survey of primary care physicians and psychiatrists to examine screening and intervention practices for illicit drug use were recently published (Friedmann PD, et al. *Archives of Internal Medicine* 2001 January 22;161(2):248-51). The investigators, partially supported by NIDA, reported that 32% of primary care physicians and psychiatrists indicated that they do not inquire routinely about illicit drug abuse. Psychiatrists and obstetrician-gynecologists were most likely to screen for drug abuse. However, obstetricians-gynecologists were least likely to intervene. Details of whether this behavior differed with pregnant versus non-pregnant patients are not known. Only 55% of physicians reported that they routinely recommend formal addiction treatment to drug-abusing patients and a substantial minority (15%) do not offer any intervention. Psychiatrists were most likely to intervene but were more likely to refer patients to a 12-step program. Optimism about the effectiveness of treatment was correlated with increased screening. Screening behavior also differed by the type of patients in the practice. If patients were older than 50 years of age, screening was less common, perhaps correlated with the correct perception of lower prevalence of illicit drug use among older people. Greater screening among physicians who treat more black patients is a little harder to explain. The

actual prevalence of illicit drug use in the black population is 7.5% versus 6.4% among whites; this suggests that a potential bias exists among some physicians.

Other studies have demonstrated that stigmatizing attitudes on the part of physicians limits their self-efficacy in screening for substance abuse. A corollary is that similar bias exists in determining who should be offered counseling and recommended screening for HIV infection.

The final barrier to care is the lack of coordination of resources as a result of :

- separate service delivery systems
- separate funding/reimbursement mechanisms
- limited availability of interventions for non-opiate abuse/addiction, and
- limited relapse prevention services in postpartum period.

Challenges for Practice and Research

Behavioral therapy for adolescents incorporates the principle that unwanted behavior can be changed by clear demonstration of the desired behavior and consistent reward of incremental steps toward achieving it. Stimulus control, urge control and social control are the three elements of this type of therapy. The latter involves family members and other significant others in helping patients to avoid drugs. However, for pregnant adolescents, the pregnancy may be part of disengagement from the nuclear family or may result in being ostracized. The adolescent receives treatment as an emancipated minor and is expected to function as an adult. There is a need for more research on developmentally appropriate behavioral interventions for adolescents during pregnancy and for research related to other costly reproductive health behaviors.

Women who are actively using drugs when they become pregnant and who continue to use drugs may not engage in prenatal care at all or until later stages. When they do access the system they encounter an approach to care that may not have the flexibility to adjust to their needs. On behalf of presumed fetal benefit, there is often a reluctance to be aggressive with pharmacotherapies such as methadone where a significantly increased dose may be needed to eliminate illicit drug use.

Effective therapy for substance abuse is typically at least one year in duration with relapse-prevention strategies often required. Even under the most optimal circumstances of early pregnancy identification and entry into prenatal care, the duration of involvement in the obstetrical care system is limited to the proverbial nine months. A continuum to after-care for both primary care and substance abuse care is often lacking. The treatment plan for a postpartum woman, particularly if HIV-infected or with an experience of an adverse pregnancy outcome, may require some adjustments to the content or intensity of the interventions in a continuing care plan. This is the difference between care to a substance abusing woman who had become pregnant as compared to a pregnant substance abuser.

At the same time that we have the greatest need for a network of services to be coordinated for an individual, there is a greater intensity and complexity to the specific elements of care once the cascade of morbidity is set in motion. Therefore, prevention of the transition from use to abuse to addiction and treatment of addiction is a primary goal for practice and research.